REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the following remarks.

Claims 1-4, 6, and 11 have been amended and claims 5, 9, and 10 cancelled without prejudice or disclaimer. Claims 12-40 have been withdrawn from consideration as directed to non-elected subject matter. Claims 1-4, 6-8, and 11 are now pending in the instant application.

Support for the amendments to the claims may be found throughout the specification. For example, support for the amendment to claim 1 can be found at page 3, lines 4-2 from the bottom of the page and page 3, lines 8-15 and claim 15 as originally filed. Support for the amendment to claim 2 can be found in the specification at page 3, lines 4-2 from the bottom of the page and page 9 lines 5-10. No new matter has been added by the amendments to the claims.

Claims 9 was objected to because it contained a typographical error. Claims 9 and 10 have been cancelled without prejudice to applicants right to pursue the subject matter of the cancelled claims in this or a subsequent application.

Claims 1-12 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected to make and/or use the invention commensurate with the scope of these claims.

More particularly, the office action alleges that the specification while being enabling for the introduction of specific groups (such as dialkylamino or thiophene) does not reasonably provide enablement for the introduction of other groups that can form or create steric hinderance.

Applicants respectfully submit that the claims as presently presented are fully compliant with the requirements of 35 U.S.C. §112, including the requirements of 35 U.S.C. §112, first paragraph. Thus the rejections should be withdrawn.

Claims 1-12 were rejected under 35 U.S.C. §112, second paragraph, as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The office action has alleged that term "constructing" in claims 1 and 4 is a relative term which renders the claims indefinite.

The office action has further alleged that the term "introducing a group having the ability to form steric hinderence" in claim 1 is indefinite because it is unclear which groups have the ability to cause, form, or create steric hinderence.

The office action additionally alleges that the language "introducing a group to be able to for additional hydrogen bonds" in claim 9 renders the claim indefinite.

Applicants respectfully submit that the claims as presently presented are fully compliant with the requirements of 35 U.S.C. §112, including the requirements of 35 U.S.C. §112, second paragraph. Thus these rejections should be withdrawn.

A brief description of the invention may be of assistance in understanding the differences between the claimed invention and the cited references.

The present invention provides a method of forming a selective base pair. The method of selective base pair preparation provided by claim 1 comprises the step of contacting a 6-substituted-2-aminopurine nucleic acid with a 2-hydroxypyridine or 2-oxopyridine nucleic acid to form a base pair. The substituent at the 6 position of the 2-aminopurine nucleic acid provides

sufficient steric bulk to block base-pairing with thymidine, uridine or cytosine. As depicted in FIG. 2, 6-substituted-2-aminopurine bases having a sterically bulky group at the 6-position selectively form base pairs with 2-hydroxypyridine (or 2-pyridinone) bases (see a and c) in part because the interaction of the 6-substituent of the 2-aminopurine base interacts with the keto substituent of thymidine base (see, b, d and e).

None of the cited references teach or suggest methods of preparing a selective base pair composed of a 2-hydroxypyridine or 2-oxopyridine nucleic acid and a 6-substituted-2-aminopurine nucleic acid, which is not capable of pairing with thymidine, uridine or cytosine.

Claims 1, 3, 4, 5, 11, and 12 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Tor, et al., (*J. Am. Chem. Soc.* (1993), 115, 4461-4467).

As the reference is understood, Tor does not introduce a group at the 6 position of a 2-amino purine nucleic acid which sterically or electrostatically blocks base pairing of the 6-substituted 2-amino-purine nucleic acid with a 2-hydroxy pyridine or 2-oxo pyridine base. More particularly, Tor recites in Figure 3 that a keto group of iC forms hydrogen bonds with the acidic NH residue of the 6-aminohexylamino group of 6-AH-iG. Thus, the 6-aminohexyl group is not capable of preventing base pair formation between 2-aminopurine and thymidine, uridine or cytosine. More particularly, as depicted in Figure 3, a base pair is formed between putative cytosine and ^{Me}iC thus, the 6-aminomethylamino group is not "a group capable of hindering base-pairing between said 2-aminopurine and thymidine, uridine or cytosine" as required by claim 1.

Moreover, as the Tor reference is understood, the 6-aminohexyl group was introduced solely for post-transcriptional modification (see. Page 4462, right column lines 7-24 from the bottom of the page and page 4465, lines 7-24 from the bottom of the page).

Thus, the Tor reference neither discloses nor suggests a method of forming a selective

base-pair contacting (i) a nucleic acid having, as a base, 2-aminopurine, which is substituted at position-6 by a group capable of hindering base-pairing between said 2-aminopurine and thymidine, uridine or cytosine, and (ii) with a nucleic acid having 2-oxo or 2-hydroxy pyridine as a base.

For at least the reasons discussed herein, claims 1, 3, 4, 5, 11, and 12 are patentable over the Tor reference. Applicants respectfully request withdrawal of the rejection and reconsideration of the claims.

Claims 1, 2, and 6-8 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Gundersen (*Tetrahedron Letters*, (1994) 35(19), 3155-8).

As the reference is understood, Gundersen merely recites a cross coupling reaction between a 6-chloropurines and an organostannanes in the presence of palladium catalyst, and 6-(2-thienyl-purine derivatives synthesized by the reaction and it does not relate to the base pairing in nucleic acids. A copy of the gundersen reference is enclosed.

Gundersen neither teaches nor suggests a method of forming a selective base-pair contacting (i) a nucleic acid having, as a base, 2-aminopurine, which is substituted at position-6 by a group capable of hindering base-pairing between said 2-aminopurine and thymidine, uridine or cytosine, and (ii) with a nucleic acid having 2-oxo or 2-hydroxy pyridine as a base.

For at least the reasons discussed herein, claims 1, 2, and 6-8 are patentable over the Gundersen reference. Applicants respectfully request withdrawal of the rejection and reconsideration of the claims.

It is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

Applicants believe that additional fees are not required for consideration of the within Response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

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